Snippets of Futures Thinking Approaches by Region 8 Research Managers

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Abstract: The purpose of this study was to provide data on "Snippets of Futures Thinking Approaches by Region 8 Research Managers" and to explore the relationship between years in service as research managers and their awareness of futures thinking approaches, their utilization of these approaches in their continuous learning practices, and the contributory factors that facilitated or hindered their adoption. A cross-sectional survey design was used in this study to collect snippets of information regarding the level of awareness, utilization, and contributing factors related to the adoption and utilization of a range of approaches for continuous learning among research managers in Region 8. The findings suggest that research managers who adopt futures thinking approaches are more likely to exhibit the factors contributing to their adoption ($r = 0.510^{**}$, $p = 0.002$), indicating that fostering a conducive organizational environment, including strong leadership, a culture of innovation, and effective communication, is crucial for promoting futures ready in research management.

1. Introduction

Continuous learning was a crucial aspect of professional and personal development in the rapidly changing work and research environment (Ruiz-Mercado et al., 2021). The importance of continuous learning in research organizations was underscored by the critical role played by research managers in supporting their teams' continuous learning and development to ensure competitiveness and innovation (Ruiz-Mercado et al., 2021; Lai and Chen, 2020).

However, with the pace of change in technology and societal trends, it became increasingly challenging to predict the skills and knowledge needed in the future, making proactive planning a challenging task (Slaughter & Rhoades, 2019). Futures thinking was a collection of methods and tools used to anticipate and prepare for potential future changes and challenges (Coates & Jarratt, 2021). Futures thinking approaches enabled research managers to identify emerging trends, anticipate future challenges, and develop strategies to respond proactively.

Several studies examined the role of continuous learning and futures thinking in research organizations. For example, Chen et al. (2019) explored the impact of futures thinking on innovation and found that it could enable research organizations to

identify and exploit emerging opportunities. Petrova and Passenheim (2019) examined the role of foresight methods in enabling research organizations to anticipate and prepare for future challenges.

Moreover, the literature investigated different futures thinking approaches. Coates and Jarratt (2021) compared several futures thinking approaches and their suitability for different organizational contexts. Miles and Singh (2021) explored the role of scenario planning in enabling research organizations to develop proactive responses to future challenges. Van der Heijden et al. (2017) examined the impact of future studies on organizational decision-making and strategy development. In the Philippines, Futures Thinking gained attention as a tool for anticipating and preparing for potential future changes and challenges. The Philippine Development Plan 2017-2022 recognized the importance of Futures Thinking in shaping policies and programs for national development (National Economic and Development Authority, 2017).

In the context of State Universities and Colleges (SUCs) in Region 8, Elegado (2017) identified several challenges, including limited funding, inadequate facilities and equipment, and the need for capacity building for faculty and staff. To address these challenges, a proactive and strategic approach was necessary, facilitated through the use of Futures Thinking approaches to anticipate and plan for potential future changes and challenges. However, despite the recognized importance of continuous learning and futures thinking in research organizations, there remained a research gap in understanding how different futures thinking approaches could support research managers in planning for the future of continuous learning in their organizations.

This study aimed to provide data on "Snippets of Futures Thinking Approaches by Region 8 Research Managers." The term "snippets" referred to small or brief extracts or pieces of information. It suggested that the study aimed to provide concise and focused insights or glimpses into the various futures thinking approaches, enabling research managers to increase their awareness and address the contributory factors to futures readiness in Region 8. The study particularly focused on exploring the relationship between years in service and the utilization of futures thinking approaches among research managers, hypothesizing that years in service did not influence the adoption or utilization of specific futures thinking approaches.

Theoretical-Conceptual Framework

The theoretical framework of this study was based on two main theories: continuous learning and futures thinking.

Continuous learning was defined as the process of acquiring knowledge and skills on an ongoing basis to enhance personal and professional development (Ruiz-Mercado et al., 2021). Continuous learning was crucial in the rapidly changing work and research environment to ensure competitiveness and innovation.

Futures thinking was described as a collection of methods and tools used to anticipate and prepare for potential future changes and challenges (Coates & Jarratt, 2021). Futures thinking approaches enabled research managers to identify emerging trends, anticipate future challenges, and develop strategies to respond proactively.

The conceptual framework (Figure 1) of this study was based on the research objectives and the theoretical framework. The conceptual framework consisted of

three main components: current approaches to continuous learning, adoption of futures thinking approaches, and factors that facilitated the adoption and effectiveness of futures thinking approaches.

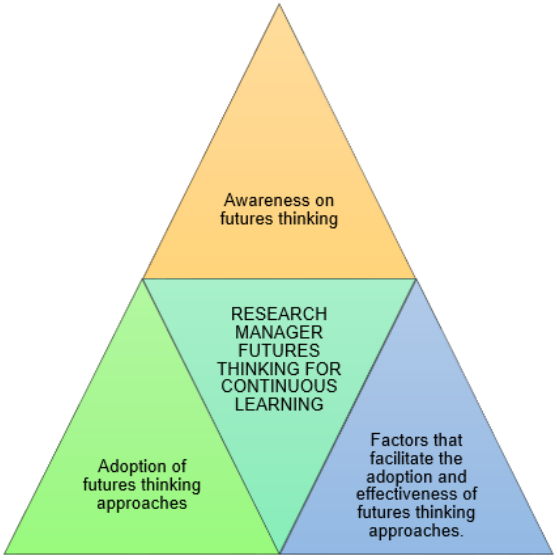

Figure 1. The Study Framework

Component 1: Current approaches to continuous learning adopted by research managers in Region 8. This component explored the current approaches to continuous learning adopted by research managers in Region 8. The focus was on understanding the existing practices, methods, and strategies employed by research managers to enhance the knowledge and skills of their teams.

Component 2: Adoption of futures thinking approaches in continuous learning practices. This component quantified the extent to which research managers in Region 8 adopted futures thinking approaches in their continuous learning practices. The focus was on identifying the specific futures thinking approaches used by research managers, such as scenario planning, trend analysis, and horizon scanning.

Component 3: Factors that facilitated the adoption and effectiveness of futures thinking approaches. This component identified the factors that facilitated the adoption and effectiveness of futures thinking approaches in continuous learning among research managers in Region 8. The focus was on exploring the factors that influenced the adoption of futures thinking approaches, such as organizational culture, leadership support, and available resources. Additionally, the study examined the factors that contributed to the effectiveness of futures thinking approaches, such as team engagement, implementation strategies, and feedback mechanisms.

The conceptual framework provided a comprehensive understanding of the impact of futures thinking approaches on research managers in Region 8 and their implications for the future of continuous learning in SUCs.

2. Objectives

The general objective of this study was to provide data on "Snippets of Futures Thinking Approaches by Region 8 Research Managers" and to explore the relationship between years in service and the utilization of these approaches. The study aimed to provide concise and focused insights or glimpses into the various futures thinking approaches, enabling research managers to increase their awareness and address the contributory factors to futures readiness in Region 8.

Specific Objectives:

1. To profile data of research managers in terms of years in service as research managers.

2. To assess the level of awareness among research managers regarding snippets of futures thinking

approaches for continuous learning and determine the extent of their utilization.

3. To identify the contributory factors influencing the adoption and utilization of snippets of futures thinking approaches for continuous learning among research managers.

4. To examine the relationship between years in service and the awareness, utilization, and contributory factors related to snippets of futures thinking approaches.

5. To cross-section the data relative to years in service as research managers and analyze the differences in awareness, utilization, and contributory factors among different groups based on years in service.

3. Methodology

The methodology section may be presented in sub sections depending on the paper. It shall contain the research design, research samples, data collection method, and data analysis. The approach of how the methodology is presented will depend on the paper submitted.

Research Design

A cross-sectional survey design was used in this study to investigate the impact of Futures Thinking approaches on research managers in Region 8 and their implications for the future of continuous learning in SUCs. The study employed a cross-sectional design because it allowed for the collection of data from a large number of participants at a single point in time, making it an efficient and cost-effective method.

By using a cross-sectional survey design, the researchers collected snippets of information regarding the level of awareness, utilization of approaches, and contributory factors related to the adoption of Futures Thinking approaches for continuous learning among research managers. The data were analyzed and cross-sectioned relative to years in service as research managers, specifically into two groups: those with below 5 years in service and those with five years and above as research managers. This analysis aimed to explore potential variations in awareness, utilization, and contributory factors across these two groups.

The study aimed to examine the relationship between years in service as research managers and their awareness of Futures Thinking approaches, utilization of these approaches in their continuous learning practices, and the contributory factors that facilitated or hindered their adoption. By conducting a cross-sectional analysis across the groups of below 5 years in service and five years and above as research managers, the researchers could gain insights into how the variables of interest vary among research managers with different levels of experience, providing valuable information on the role of years in service as research managers in the adoption and utilization of Futures Thinking approaches for continuous learning in the region.

Instrumentation

The data collection tool or research instrument used in this study was a researcher-made survey questionnaire since there were no existing questionnaires available to measure or serve as a basis to foresee the future of continuous learning. The researcher-made questionnaire

consisted of two parts: the personal profile of the research managers, including their affiliation, designation, or position, and years of experience as research managers, followed by the three variables of the study.

Part 1 focused on the level of awareness of futures thinking approaches; Part II assessed the extent of adopting futures thinking approaches; and Part III explored the contributing factors to futures thinking adoption. The participants were required to respond to each part using a Five-Likert Scale, as presented in Table 1, where each score represented a specific level of agreement, adoption, or importance.

The formulated statements underwent content validation by expert judgment using the content-validation ratio to ensure alignment and the inclusion of relevant indicators for each component. The experts confirmed that the statements were relevant to the research objectives and were based on sound research from reputable sources. It also underwent a reliability test in the form of a Cronbach alpha value by

Table 1. The Scoring Scales for the Researcher-made Questionnaire

Score	Level of Awareness in Futures Thinking Approaches	Extent of adopting futures thinking Approaches	Contributory Factors to Futures Thinking Adoption
5	Strongly Agree (SA): This option indicates a strong level of agreement or endorsement of the statement or question being asked.	Fully (F): This option indicates that Futures Thinking Approaches have been fully adopted and integrated within the organization or individual, and are used consistently and effectively in decision-making processes.	Most important (MI): This option indicates that the factor is crucial and has the highest priority in facilitating the adoption and effectiveness of Futures Thinking approaches in continuous learning. This factor must be addressed for successful adoption and implementation of Futures Thinking approaches.
4	Agree (A): This option indicates a moderate level of agreement with the statement or question being asked.	Mostly (Mos): This option indicates that Futures Thinking Approaches have been adopted and integrated to a large extent within the organization or individual. This option indicates that Futures Thinking Approaches have been adopted and integrated to a large extent within the organization or individual.	Very important (VI): This option indicates that the factor is highly important in facilitating the adoption and effectiveness of Futures Thinking approaches in continuous learning. The factor requires attention and should be given high priority.
3	Neutral (N): Neutral: This option indicates a lack of agreement or disagreement with the statement or question being asked.	Moderately (Mod): This option indicates that Futures Thinking Approaches have been moderately adopted and integrated within the organization or individual.	Important (I): This option indicates that the factor is significant in facilitating the adoption and effectiveness of Futures Thinking approaches in continuous learning. The factor should be addressed to ensure effective adoption and implementation of Futures Thinking approaches.
2	Disagree (D): This option indicates a moderate level of opposition or disagreement with the statement or question being asked.	Slightly (S): This option indicates that Futures Thinking Approaches have been adopted to a small extent within the organization or individual, but not yet fully integrated.	Somewhat important (SI): This option indicates that the factor is somewhat relevant in facilitating the adoption and effectiveness of Futures Thinking approaches in continuous learning. The factor may require some attention but is not as critical as the factors ranked higher.
1	Strongly Disagree (SD): This option indicates a strong opposition or disagreement with the statement or question being asked.	Not at all (N): This option indicates that Futures Thinking Approaches have not been adopted at all within the organization or individual.	Not important (NI): This option indicates that the factor is not relevant in facilitating the adoption and effectiveness of Futures Thinking approaches in continuous learning. The factor may be ignored or given minimal attention.

The statements in the survey questionnaire were formulated based on literature readings related to future thinking and its impact on research management. These statements aimed to assess the level

piloting the instrument with research managers outside region 8. The statements covered various aspects of futures thinking, including its definition, purpose, benefits, and the actions and attitudes of research managers towards futures thinking

approaches. The statements were designed to be clear, easy to understand, and appropriate for the research objectives of the study.

Validation of Instrument

Validation Process

The instrument was validated by consulting two experts specializing in futures thinking from the Philippines Futures (PhilFutures) Society and Aptissimi Development Innovations, Inc. (ADII). These experts had experience in the University Research Futures Thinking and Foresight Capacity Building Program for state universities and colleges (SUCs), making them well-suited to evaluate the formulated statements.

The expert-evaluators carefully reviewed each statement and provided their agreement or disagreement with each item. The consensus between the two experts on each item indicated a consensus, eliminating the need for a third expert validator from the same institution.

After the expert evaluation, the Content Validation Ratio (CVR) was calculated for each item to assess its content validity. The CVR was determined by dividing the number of experts who rated the item as essential by the total number of experts. Items with a CVR below the predetermined threshold were considered for revision or removal from the questionnaire.

The content validation results for the different components related to futures thinking approaches reveal valuable insights into the essentiality of each item in the instrument. In the analysis of the level of awareness, all items except for Item Number 6, "As a research manager, I regularly encourage my team to engage in futures thinking exercises and incorporate futures thinking into our research projects," received a CVR value of 1, indicating their importance in measuring awareness. On the other hand, Item Number 6 had a CVR value of -1, suggesting that it does not significantly contribute to the construct and should be removed. This analysis helps refine the instrument by focusing on items that are deemed essential for assessing awareness.

Similarly, in the analysis of the utilization of futures thinking approaches, all items received a CVR value of 1, signifying their importance in measuring utilization. The findings indicate that all items in this component are necessary and should be retained in the instrument. This ensures that the assessment effectively captures individuals' utilization of future-oriented thinking approaches.

For the contributory factors component, all items, except for Item Number 11, “11. Leadership support: Leadership support is crucial for the successful adoption of futures thinking approaches. Leaders who promote and support futures thinking can create a culture of innovation and continuous learning, and provide the necessary resources and incentives to support its implementation,” received a CVR value of 1. The majority of the items were unanimously considered essential, indicating their significance in assessing the contributing factors. However, Item Number 11 did not meet the criteria for essentiality and should be eliminated from the instrument.

Reliability Testing

To test the reliability of the questionnaire, it was distributed to research

managers in regions other than the study locale (Region 8) after the instrument's development was completed. The target participants included research coordinators, research center directors, research executive directors, and vice presidents for research. These research managers served as the actual respondents in the reliability testing phase.

A two-week period was provided for participants to complete the questionnaire. If at least 10 participants from the various regions completed the survey, the Cronbach's alpha coefficient was calculated to assess the internal consistency of the items. While a larger sample size is generally recommended for Cronbach's alpha analysis to ensure reliability and generalizability, a smaller sample size of 10 participants was deemed appropriate for the validation process in this study due to the specialized nature of the research manager population (Bryan & Bell, 2019).

The reliability test results indicate that the developed instrument has good to excellent internal consistency and reliability across its different components.

For the Awareness component, consisting of 19 items, the Cronbach's alpha value of 0.909 falls into the "excellent" range. This suggests that the items in this component are strongly interrelated and reliably measure the construct of awareness among research managers.

The Approaches component, also comprising 19 items, achieved an exceptional Cronbach's alpha value of 0.984, categorizing it as "excellent." This indicates a very high level of internal consistency and reliability, indicating that the approach-related items in the instrument are highly consistent in assessing the intended construct among research managers.

The Factors component, with 14 items, obtained a Cronbach's alpha value of 0.824, which falls into the "good" range. Although slightly lower than the other components, this value still suggests a satisfactory level of internal consistency. Further investigation can be conducted to explore potential reasons for the lower consistency and consider ways to improve it if necessary.

Considering all 52 items of the instrument together, the overall Cronbach's alpha value is 0.956, indicating excellent internal consistency. This demonstrates strong interrelationships among the items and high reliability for the instrument as a whole in measuring the intended constructs among research managers.

It is important to acknowledge that these results are based on a small sample size, and further validation with a larger and more diverse sample is recommended to enhance the generalizability of the findings. Additionally, considering other aspects of the instrument's validity, such as content validity and construct validity, is crucial for a comprehensive evaluation of its quality and reliability. Nonetheless, based on the current results, the developed instrument shows promise in effectively measuring the constructs of awareness, approaches, and factors among research managers outside region 8.

Sampling Procedure

The complete enumeration or census sampling method was deemed appropriate for this study as the population of research managers in state universities in Region 8, specifically on the islands of Samar and

Leyte, was relatively small. This allowed for the feasible sampling of the entire population, ensuring that all research managers were included in the study. By employing this sampling method, the researchers aimed to obtain a more accurate and representative understanding of the level of awareness and adoption of Futures Thinking approaches among research managers in the region.

Although it was possible that some respondents may refuse to participate, measures were taken to minimize sampling bias. A strict timeline for data collection was implemented, with a designated two-week window for respondents to complete the questionnaire upon receipt. Reminders were sent three days before the deadline, emphasizing the importance of their contribution to the study and encouraging participation.

In order to further incentivize participation, each respondent who completed the survey questionnaire was provided with a load card code worth PHP 300 as a token of appreciation. This incentive was intended to motivate more respondents to take part in the study and increase the overall response rate. It is important to note that the provision of incentives in research should be carried out ethically, without unduly influencing participants' decisions to participate.

Data Gathering Procedure

The data gathering procedure began with the researcher obtaining ethical clearance and ensuring adherence to research protocols and validation procedures for the questionnaire. Specific ethical guidelines and procedures were followed to obtain the necessary clearance.

Once ethical clearance was obtained, a communication letter was sent to state universities in Region 8, addressed to the university president with attention to the vice president for research. The letter contained a link to a Google form where the survey questions were hosted, along with the specified date for retrieving the responses. This initial letter was sent one week before the data collection period commenced, and a follow-up letter was sent a week later to confirm proper dissemination.

Within the Google form, participants were presented with a letter and an agreement to participate in the study before answering the survey. This ensured that participants were fully informed and gave their consent to take part. Participants were given the option to refuse or withdraw their participation without any consequences.

After the data collection period, the gathered data were analyzed using appropriate statistical methods for interpretation. The choice of analysis software depended on the nature of the data and the research objectives. The results were reported clearly and concisely, with the aid of tables, graphs, and visual aids to enhance comprehension. The findings were then interpreted in relation to the research objectives and the literature review, leading to conclusions and recommendations based on the results.

Throughout the data gathering process, confidentiality was strictly maintained, and steps were taken to protect the participants' identities and ensure data security. An estimated timeline was provided for each stage of the data gathering process to manage expectations and ensure the research remained on schedule.

Data Analyses

These statistics are utilized to analyze the data and provide insights into the level of awareness, adoption of approaches, and contributing factors to futures thinking in research management.

Years in Service as Research Manager:

- Mean: The mean represents the average number of years of experience as a research manager.
- Standard Deviation (SD): The standard deviation indicates the variability or dispersion of the data points around the mean.

Contributory Factors to the Futures Thinking Adoption:

- Mean: The mean scores represent the perceived importance of various factors contributing to the adoption of futures thinking in research management.
- SD: The standard deviation indicates the variability of responses for each factor.

After performing the test of normality (Table 2) among the variables, these are the inferential statistics used:

Table 2. Test of Normality

Variable	Kolmogorov-Smirnov[a]			Shapiro-Wilk			Decision
	Statistic	df	Sig.	Statistic	df	Sig.	
Years in Service	0.265	34	<0.001	0.649	34	<0.001	Not Normal
Awareness	0.239	34	<0.001	0.665	34	<0.001	Not Normal
Approach	0.127	34	0.183	0.930	34	0.183	Normal
Factor	0.277	34	<0.001	0.825	34	<0.001	Not Normal

Awareness on Futures Thinking Approaches:

- Mean: The mean scores represent the level of awareness among research managers regarding futures thinking approaches.
- SD: The standard deviation indicates the variability of responses for each statement.

Approaches to Futures Thinking for Continuous Learning:

- Mean: The mean scores reflect the adoption level of different futures thinking approaches for continuous learning.
- SD: The standard deviation indicates the variability of responses for each approach.

Correlational Analyses:

- Spearman's rho: The correlation coefficients and significance levels are used to examine the relationships between variables, such as years in service, awareness, approaches, and factors related to futures thinking.

Cross-Sectional Analyses Relative to Age:

- Related-Samples Wilcoxon Signed Rank (Null Hypothesis Test): The test compares the median differences in awareness, approaches, and factors between research managers with different years of service.

Ethical Considerations

The ethical considerations for the research were carefully addressed. The

confidentiality and anonymity of the participants were ensured by following ethical guidelines. Informed consent was obtained from all participants before their participation in the survey. The survey questionnaire was designed in such a way that it did not ask for personal information that could identify the participants. Approval from the Ethics Review Board (ERB) of the lead author's institution was obtained to conduct the study. The researchers took precautions to protect the participants' identities when disseminating the study results. To safeguard the privacy of the participants, the researcher implemented data anonymization measures. Personal identifiers, such as names and addresses, were removed from the dataset to minimize the risk of re-identification. Any information that could potentially identify a participant was either deleted or replaced with pseudonyms or unique identifiers. The researcher ensured the secure storage of the anonymized data and restricted access to authorized personnel only. Any third-party data processors or contractors involved in the research were also required to comply with the anonymization protocols to maintain data confidentiality and privacy.

4. Results and Discussion

Profile of the Respondents

Table 3 provides an overview of the profile of research managers in Region 8, focusing on their affiliation, designation, and years of service in their respective roles. The distribution of respondents across different universities and institutions in Region 8 shows the representation of research managers from various organizations. Samar State University (SSU) has the highest number of respondents (38.24%), indicating a significant presence of research managers from this institution. This finding suggests that SSU plays a prominent role in research management within the region. Other universities, such as Northwest Samar State University (NwSSU), University of Eastern Philippines (UEP), and Eastern Visayas State University (EVSU), also have notable representation.

Among the designated positions, Researcher Center Director has the highest frequency (29.41%), followed by Faculty Researcher (20.59%) and College Research Coordinator (11.76%). The presence of Research Chairpersons/Heads (8.82%) indicates the involvement of individuals leading research initiatives within their respective institutions. It is worth noting that a considerable proportion of respondents did not indicate their designation (20.59%), which could be attributed to various reasons, such as the absence of a specific research management position in their institutions or incomplete reporting.

The majority of research managers in the sample have 1-3 years of experience (58.82%), suggesting a relatively young cohort of research managers in the region. This finding implies that there may be a continuous influx of new research managers in Region 8, which could have implications for training and capacity-building programs tailored to early-career research managers. Additionally, respondents with 4-6 years of experience (20.59%) indicate the presence of more experienced research managers who can provide valuable insights and mentorship to their colleagues.

The distribution of research managers across different affiliations reflects the collaborative research landscape within Region 8.
It signifies the potential for knowledge-sharing, resource pooling, and

Table 3. Profile of the Respondents

Characteristic	Group	f	%
Affiliation	University of Eastern Philippines (UEP)	3	8.82
	Northwest Samar State University (NwSSU)	4	11.76
	Samar State University (SSU)	13	38.24
	Eastern Visayas State University (EVSU)	3	8.82
	Leyte Normal University (LNU)	3	8.82
	Visayas State University (VSU)	3	8.82
	Southern Leyte State University (SLSU)	1	2.94
	Palompon Institute of Technology (PIT)	2	5.88
	Biliran Province State University (BiPSU)	2	5.88
Designation	Not Indicated	7	20.59
	Vice President for Research	2	5.88
	Researcher Center Director	10	29.41
	Research Chairperson/Head	3	8.82
	College Research Coordinator	4	11.76
	Faculty Researcher	7	20.59
	Research Ethics Committee	1	2.94
Years in Service as	Not indicated	1	2.94
Research Manager	1 – 3 years	20	58.82
	4 – 6 years	7	20.59
	7 – 9 years	2	5.88
	10 – 12 years	2	5.88
	Above 12 years	2	5.88
	Average	*4.59 years*	
	S.D.	*5.66 years*	

research partnerships among universities and institutions in the region.This finding aligns with the concept of regional research collaborations, which can enhance research productivity, address regional challenges, and foster interdisciplinary approaches (Gupta & Dhawan, 2017).

The variety of designated positions indicates the diverse roles and responsibilities within research management in Region 8. The presence of Researcher Center Directors and Research Chairpersons/Heads highlights the leadership and coordination efforts in managing research activities and initiatives. This underscores the importance of effective research management structures and the need for strong leadership to drive research excellence and innovation within institutions (Wilsdon et al., 2015).

The predominance of research managers with 1-3 years of experience suggests the potential for continuous professional development and capacity-building programs targeting early-career research managers in Region 8. Such programs could focus on enhancing research management skills, providing mentorship opportunities, and promoting collaboration to support the growth and effectiveness of these emerging research managers (Russell et al., 2020).

The findings from this study contribute to the understanding of the research management landscape in Region 8 and can inform strategic planning, resource allocation, and capacity-building initiatives aimed at strengthening research management practices and fostering a vibrant research culture within the region.

Snippets of Futures Thinking

Level of Awareness on Futures Thinking Approaches

The statements provided in Table 4 indicate the level of awareness regarding futures thinking among research managers. The mean scores range from 4.00 to 4.50, suggesting a relatively high level of awareness. The standard deviations range from 0.79 to 1.10, indicating moderate to low variability in responses.

Table 4. Respondents' Levels of Awareness on Futures Thinking

	Statement Indicators	Mean/ Interpretation	SD	Rank
1.	I am aware that prospective thinking necessitates a methodical analysis of present trends and patterns.	4.41 (Fully Aware)	0.99	9.5
2.	I realize that futures thinking entails developing possible future scenarios in order to better comprehend and adapt to future changes.	4.38 (Fully Aware)	1.02	11.5
3.	I realize that the purpose of futures thinking is to enhance our capacity to comprehend and adapt to potential future changes.	4.41 (Fully Aware)	1.02	9.5
4.	I recognize the significance of incorporating a focus on the future into our research strategies.	4.47 (Fully Aware)	0.90	6
5.	To better anticipate and respond to future changes, I am dedicated to incorporating futures thinking into our research practices.	4.50 (Fully Aware)	0.79	2
6.	I consistently review and update our long-term strategic plans based on changes in the industry and potential future trends and disruptions.	4.00 (Aware)	1.02	19
7.	I actively seek out professional development opportunities to develop my skills in futures thinking and strategic planning.	4.35 (Fully Aware)	1.01	14
8.	I make a point to regularly network with colleagues and industry experts to stay informed about emerging trends and potential future developments.	4.15 (Aware)	1.08	18
9.	I encourage a culture of innovation within my organization by promoting experimentation and risk-taking in our research projects and strategic planning.	4.26 (Fully Aware)	1.08	17
10.	As a research manager, I am aware of the need to adopt a futures thinking approach in my research planning to better prepare for unexpected events such as the COVID-19 pandemic.	4.35 (Fully Aware)	1.10	14
11.	I understand that engaging in futures thinking exercises can help me identify new research opportunities and proactively manage potential risks and uncertainties in my research projects.	4.47 (Fully Aware)	0.99	6
12.	I am committed to incorporating futures thinking into my research planning process to better anticipate potential disruptions and develop contingency plans to ensure the continuity of my research activities.	4.29 (Fully Aware)	1.06	16
13.	I recognize that futures thinking can foster innovation and creativity in research projects, leading to better overall outcomes and enhancing my contribution to the organization.	4.35 (Fully Aware)	1.04	14
14.	I acknowledge that adopting a futures thinking approach is critical to staying ahead of emerging trends and disruptions in my industry, and I am committed to continuously developing my skills in this area.	4.38 Fully Aware)	0.89	11.5
15.	As a research manager, I recognize that adopting a futures thinking approach can promote a culture of continuous learning and innovation within my organization, ultimately improving our overall performance.	4.47 (Fully Aware)	0.90	6
16.	I understand that by exploring new ideas and approaches through futures thinking, I can enhance my skills and knowledge and contribute to the overall success of the organization.	4.50 (Fully Aware)	0.90	2
17.	I am committed to fostering a culture of continuous learning and innovation within my team by encouraging experimentation and risk-taking in our research projects.	4.50 (Fully Aware)	0.90	2
18.	I acknowledge the importance of continuous learning for my job satisfaction, job performance, and career development, and I am committed to developing my skills through professional development opportunities.	4.47 (Fully Aware)	0.99	6
19.	I recognize that adopting a futures thinking approach can help me to stay ahead of emerging trends and disruptions in my industry, contributing to the overall success of my organization.	4.47 (Fully Aware)	0.90	6
	Grand Weighted Mean	4.38 (Fully Aware)		
	SD	0.98		

Legend: 4.20 – 5.00 (Fully Aware); 3.40 – 4.19 (Aware); 2.60 – 3.39 (Neither Aware or Unaware); 1.80 – 2.59 (Unaware); 1.00 – 1.79 (Fully Unaware)

The results suggest that research managers have a good understanding of the concepts related to futures thinking. They are aware that futures thinking involves analyzing present trends and patterns (Mean = 4.41, SD = 0.99) and developing future scenarios to comprehend and adapt to changes (Mean = 4.38, SD = 1.02). Research managers also recognize the significance of incorporating a focus on the future into research strategies (Mean = 4.47, SD = 0.90) and actively seek professional development opportunities to enhance their skills in futures thinking and strategic planning (Mean = 4.35, SD = 1.01). The research managers are fully aware (Grand Weighted Mean=4.38, SD=0.98) of the futures thinking approaches.

These findings have important implications for research managers and organizations. Research managers who are aware of the value of futures thinking can make informed decisions and take proactive steps to anticipate and respond to future changes. They can incorporate futures thinking into their research planning processes and promote a culture of continuous learning and innovation within their teams. By staying informed about

emerging trends and disruptions, research managers can contribute to the overall success of their organizations.

The findings align with the importance of futures thinking highlighted in previous research. Studies have shown that futures thinking enhances an organization's ability to adapt to uncertainties and seize new opportunities (Chermack, 2011). Awareness of the future and its implications can foster innovation and improve decision-making (Miller & Van der Vegt, 2016). Engaging in futures thinking exercises can help identify new research opportunities and manage potential risks (Rohrbeck & Kum, 2018).
Overall, the study suggests that research managers' awareness of futures thinking is crucial in fostering a forward-looking mindset and enabling organizations to navigate future challenges and opportunities effectively.

Approaches to Futures Thinking for Continuous Learning

Table 5 presents the mean scores, standard deviations, and ranks for research managers' adoption of various futures thinking approaches for continuous learning. The mean scores range from 3.44 to 4.12, indicating a mostly positive adoption of these approaches. The standard deviations range from 0.77 to 1.30, suggesting varying levels of variability in responses.

The results suggest that research managers have a relatively high adoption of certain futures thinking approaches for continuous learning. The top-ranked approaches include environmental scanning (Mean = 4.12, SD = 0.95), design thinking (Mean = 4.00, SD = 0.85), and strategic foresight (Mean = 3.85, SD = 1.02). These approaches indicate research managers' inclination towards gathering external information, approaching problems creatively, and developing a comprehensive understanding of their field.

On the other hand, approaches such as backcasting, Delphi method, and moonshot received lower mean scores, indicating a relatively lower adoption by research managers. These approaches may require further attention and promotion to enhance their adoption and integration into research management practices.

The findings highlight the importance of adopting a range of futures thinking approaches for continuous learning in research management. Research managers who engage in environmental scanning, design thinking, and strategic foresight are better equipped to anticipate potential changes, develop innovative solutions, and gain a holistic understanding of their field. By fostering the adoption of these approaches, research organizations can enhance their ability to adapt, innovate, and address the needs of the community.

The results align with previous research emphasizing the value of futures thinking approaches for continuous learning and research management. Environmental scanning enables research managers to gather valuable insights from the external environment (Chermack, 2011). Design thinking promotes creative problem-solving and innovation (Brown, 2008). Strategic foresight enables research managers to anticipate and plan for potential changes (Rohrbeck et al., 2015). These approaches have been recognized as effective tools for research managers in various contexts.

Table 5: Respondents' Adoption to Futures Thinking Approaches for Continuous Learning

Statement Indicators	Mean/ Interpretation	SD	Rank
1. **Anticipatory thinking:** Research managers can engage in anticipatory thinking by exploring potential future scenarios and identifying trends and emerging issues that may impact their field. This can involve analyzing data, monitoring trends, and considering different perspectives.	3.88 (Mostly)	0.77	4
2. **Scenario planning:** Scenario planning involves creating multiple scenarios of potential futures and exploring the implications of each. This approach can help research managers anticipate and prepare for different possibilities.	3.76 (Mostly)	0.92	11
3. **Systems thinking:** Systems thinking involves looking at the big picture and considering the interconnections between different factors that impact the research landscape. Research managers who use systems thinking can identify leverage points and opportunities for change.	3.91 (Mostly)	0.79	3
4. **Design thinking:** Design thinking involves approaching problems in a creative and user-centered way. This approach can help research managers develop innovative solutions to complex challenges.	4.00 (Mostly)	0.85	2
5. **Futures mapping:** Futures mapping involves visually mapping out potential future scenarios and exploring the potential impacts and implications of each. This approach can help research managers identify potential challenges and opportunities.	3.79 (Mostly)	0.98	7.5
6. **Horizon Scanning:** Research managers can use horizon scanning to identify emerging trends and technologies that could impact their field in the future. By staying up-to-date with the latest developments, research managers can anticipate and prepare for potential changes.	3.76 (Mostly)	1.02	11
7. **Backcasting:** Research managers can use backcasting to work backward from a desired future state to identify the actions and strategies needed to achieve that future state. This approach can help research managers develop long-term goals and prioritize actions to achieve those goals.	3.53 (Mostly)	0.99	18
8. **Futures Workshops:** Research managers can facilitate futures workshops to bring stakeholders from different disciplines together to discuss potential future scenarios and identify opportunities for collaboration and innovation.	3.76 (Mostly)	1.07	11
9. **Strategic Foresight**: Research managers can use strategic foresight to develop a comprehensive understanding of their field and anticipate potential changes in the future. By combining various futures thinking approaches, research managers can develop a holistic understanding of their field and identify strategies to stay ahead of the curve.	3.85 (Mostly)	1.02	5
10. **Environmental Scanning:** Research managers can use environmental scanning to gather information about the external factors that could impact their field in the future. This can include monitoring trends in technology, economics, politics, and social factors. By staying up-to-date with the latest developments, research managers can anticipate and prepare for potential changes.	4.12 (Mostly)	0.95	1
11. **Cross-Impact Analysis:** Research managers can use cross-impact analysis to explore the potential interactions between different factors that could impact their field in the future. This can help them identify potential risks and opportunities and develop strategies to address them	3.79 (Mostly)	1.15	7.5
12. **Visioning:** Research managers can use visioning to develop a shared vision of the future for their organization or field. This can help them align their strategies and actions with a common purpose and create a sense of direction and motivation.	3.79 (Mostly)	1.20	7.5
13. **Delphi Method:** Research managers can use the Delphi method to gather expert opinions and forecast future developments in their field. This approach involves gathering input from a diverse group of experts and using a structured process to reach consensus on likely future scenarios.	3.59 (Mostly)	1.21	17
14. **Futures Wheel:** This approach involves creating a visual representation of the potential consequences of a particular trend or event. By mapping out the potential impacts and related factors, research managers can identify areas of risk and opportunity.	3.68 (Mostly)	1.30	15
15. **Learning Metrics:** Research managers can track learning metrics such as the number of training programs attended, the number of new skills acquired, and the feedback received from peers and colleagues to assess their progress in continuous learning.	3.74 (Mostly)	1.24	13
16. **Innovation Metrics:** Research managers can measure innovation metrics such as the number of patents filed, the number of new research collaborations, and the percentage of new research projects to assess their ability to adapt to changing circumstances and identify new research opportunities.	3.71 (Mostly)	1.29	14
17. **Network Analysis:** Research managers can analyze their network of collaborators, partners, and stakeholders to assess the strength of their relationships and identify new opportunities for collaboration.	3.65 (Mostly)	1.25	16
18. **Moonshot:** Research management approach that focuses on amplifying potential futures and achieving lofty visions by emphasizing continuous learning, innovation, environmental scanning, and network analysis. This approach is designed to help research managers achieve their goals by providing them with the tools and resources they need to coordinate and oversee research activities effectively.	3.44 (Mostly)	1.28	19
19. **Outcome Metrics:** An approach to research management that focuses on evaluating the impact of research projects on the quality of life of stakeholders and the extent to which they contribute to the Sustainable Development Goals (SDGs). This approach involves identifying key metrics and indicators that can be used to assess the effectiveness and relevance of research projects in addressing the needs of the community and broader society.	3.79 (Mostly)	1.04	7.5
Grand Weighted Mean	3.77 (Mostly)		
SD	1.07		

Legend: 4.20 – 5.00 (Fully); 3.40 – 4.19 (Mostly); 2.60 – 3.39 (Moderately); 1.80 – 2.59 (Slightly); 1.00 – 1.79 (Not At All)

Overall, the study suggests that research managers who embrace futures thinking approaches for continuous learning are better positioned to navigate future challenges, drive innovation, and contribute to the overall success of their research organizations. Promoting the adoption of these approaches can enhance research management practices and improve the ability to address societal needs effectively.

Contributory Factors to the Futures Thinking Adoption

Table 6 provides the mean scores, standard deviations, and ranks for the contributory factors to the adoption of futures thinking. The mean scores range from 4.44 to 4.71, indicating that all factors are considered important to a high degree. The standard deviations range from 0.46 to 0.61, suggesting relatively low variability in responses.

The results highlight several key factors that contribute to the adoption of futures thinking in research management. The top-ranked factors include organizational factors (Mean = 4.71, SD = 0.46) and organizational culture (Mean = 4.71, SD = 0.46), indicating their critical importance. These factors emphasize the

role of strong leadership, a culture of innovation and continuous learning, effective communication and collaboration, and the ability to anticipate and adapt to changes in the external environment.

Other significant factors include mindset and attitude (Mean = 4.68, SD = 0.47), collaboration and diversity (Mean = 4.65, SD = 0.54), and training and capacity building (Mean = 4.68, SD = 0.47). These factors underscore the importance of open-mindedness, interdisciplinary thinking, and the acquisition of relevant skills and knowledge to foster futures thinking adaptation.

The findings suggest that fostering a conducive organizational environment, including strong leadership, a culture of innovation, and effective communication, is crucial for promoting futures thinking in research management. Additionally, emphasizing the development of mindset, thinking skills, and collaboration can facilitate the adoption of futures thinking approaches. Investing in training and capacity building programs can also enhance the skills and knowledge necessary for effective futures thinking.

The results align with prior research emphasizing the significance of

Table 6. Contributory Factors to the Futures Thinking Adoption

	Statement Indicators	Mean/ Interpretation	SD	Rank
1.	**Mindset and Attitude:** Having an open-minded and curious attitude towards the future is crucial for futures thinking adaptation. It requires individuals and organizations to be willing to challenge assumptions and conventional thinking, allowing them to consider a wide range of potential future scenarios and possibilities.	4.68	0.47	5
2.	**Thinking Skills:** Thinking skills such as critical thinking and creativity are essential for futures thinking adaptation. These skills enable individuals and organizations to generate and evaluate a range of potential futures and solutions, allowing them to make informed decisions in the face of uncertainty.	4.56	0.56	11.5
3.	**Collaboration and Diversity:** Collaboration and interdisciplinary thinking are important for futures thinking adaptation, as they allow individuals and organizations to draw on diverse perspectives and expertise. This can help to identify blind spots and generate innovative ideas that might not be apparent otherwise.	4.65	0.54	8.5
4.	**Learning and Experimentation:** Continuous learning and experimentation are key for futures thinking adaptation, as they allow individuals and organizations to test and refine their ideas and approaches over time. This can help to identify what works and what doesn't, allowing for continuous improvement and adaptation.	4.56	0.56	11.5
5.	**Organizational Factors:** Several organizational factors can contribute to futures thinking adaptation, including strong leadership that prioritizes long-term thinking, research management that fosters a culture of innovation and continuous learning, effective communication and collaboration within teams, a strong organizational culture that encourages experimentation and learning, the integration of technology and data analytics into strategic planning processes, and the ability to anticipate and adapt to changes in the external environment.	4.71	0.46	1.5
6.	**Organizational culture:** An organizational culture that values innovation, creativity, and forward-thinking can facilitate futures thinking adaptation. A culture that encourages experimentation, risk-taking, and learning from failure can help research managers to embrace futures thinking and incorporate it into their work.	4.71	0.46	1.5
7.	**Collaboration and partnerships:** Collaboration and partnerships with other organizations and stakeholders can facilitate futures thinking adaptation. By engaging with diverse stakeholders, research managers can gain new perspectives and insights that can inform their futures thinking efforts.	4.68	0.47	5
8.	**Data and information:** Access to high-quality data and information is critical for effective futures thinking. Research managers need reliable information to identify emerging trends, anticipate change, and make informed decisions about the future.	4.68	0.53	5
9.	**Training and capacity building:** Training and capacity building can help research managers to develop the skills and knowledge needed to apply futures thinking approaches effectively. By providing training and support, organizations can facilitate the adoption of futures thinking and promote continuous learning in research management.	4.68	0.47	5
10.	**Strategic planning processes:** The strategic planning processes of an organization can also influence the adoption of futures thinking. If an organization's strategic planning process is rigid and focused solely on the short-term, it may be difficult to integrate futures thinking. However, if the strategic planning process is flexible and emphasizes long-term planning, there may be greater opportunities to incorporate futures thinking approaches like scenario planning.	4.65	0.49	8.5
11.	**Identify emerging research areas:** By scanning the horizon, research managers can identify new research areas that are likely to become important in the future. This can help the organization stay ahead of the competition and ensure that they are investing in the right areas.	4.50	0.56	14
12.	**Assess potential impact:** Horizon scanning can help research managers assess the potential impact of emerging trends and technologies on the organization. This can help them identify potential threats and opportunities and develop strategies to mitigate or leverage them.	4.53	0.56	13
13.	**Inform decision-making:** By providing early warning of potential threats and opportunities, horizon scanning can help research managers make informed decisions about research investments, partnerships, and other strategic initiatives.	4.68	0.47	5
14.	**Enhance innovation:** Horizon scanning can help research managers identify new technologies and trends that can be leveraged to enhance innovation. By staying on top of emerging trends, organizations can stay ahead of the competition and bring new products and services to market faster.	4.59	0.61	10
	Grand Weighted Mean	4.63 (Most Important)		
	SD	0.52		

Legend: 4.20 – 5.00 (Most Important); 3.40 – 4.19 (Very Important); 2.60 – 3.39 (Important); 1.80 – 2.59 (Somewhat Important); 1.00 – 1.79 (Not Important)

organizational factors and culture in promoting futures thinking in research management (Rohrbeck et al., 2013). They also support the importance of mindset and thinking skills for futures thinking adaptation (Gordon & Hayward, 2019) and the value of collaboration and diversity in generating innovative ideas (Rigby et al., 2016). Furthermore, the findings underscore the role of training and strategic planning processes in facilitating futures thinking (Miles et al., 2014).

Overall, the study highlights the multifaceted nature of factors that contribute to the adoption of futures thinking in research management. By addressing these factors and creating an enabling environment, research organizations can cultivate a culture of futures thinking and enhance their ability to anticipate and adapt to future changes effective.

Correlation Analyses

The correlational analysis results presented in Table 7 provide insights into the relationships between years in service, awareness of futures thinking, adoption of futures thinking approaches, and contributory factors to futures thinking adoption among research managers. The significance levels and correlations were determined using Spearman's rho coefficient (Field, 2013).

The results indicate a weak positive relationship between years in service and awareness of futures thinking ($r = 0.298$, $p = 0.086$), suggesting that as years in service increase, research managers tend to have a slightly higher level of awareness of futures thinking. However, this relationship was not statistically significant. Similarly, there was no significant association between years in service and the adoption of futures thinking approaches ($r = -0.080$, $p = 0.653$), indicating that the length of service does not significantly impact the adoption of these approaches.

In terms of the contributory factors to futures thinking adoption, there was no significant relationship with years in service ($r = 0.047$, $p = 0.790$), suggesting that the factors contributing to the adoption of futures thinking are not influenced by the number of years in service.

Furthermore, the analysis revealed a weak positive relationship between awareness of futures thinking and adoption

Table 7. Correlation Results

Spearman's rho			Years in Service	Awareness	Approaches	Factors
	Years in Service	Correlational Coefficient	1.00	0.298	-0.080	0.047
		Sig. (2-tailed)		0.086	0.653	0.790
		N	34	34	34	34
	Awareness	Correlational Coefficient	0.298	1.00	0.241	0.253
		Sig. (2-tailed)	0.086		0.169	0.148
		N	34	34	34	34
	Approaches	Correlational Coefficient	-0.080	0.241	1.00	0.510**
		Sig. (2-tailed)	0.653	0.169		0.002
		N	34	34	34	34
	Factors	Correlational Coefficient	0.047	0.253	0.510**	1.00
		Sig. (2-tailed)	0.790	0.148	0.002	
		N	34	34	34	34

of futures thinking approaches (r = 0.241, p = 0.169), indicating that research managers with higher awareness are more likely to adopt these approaches, although not statistically significant. Similarly, a weak positive relationship was found between awareness of futures thinking and the contributory factors to futures thinking adoption (r = 0.253, p = 0.148).

However, a significant positive relationship was observed between the adoption of futures thinking approaches and the contributory factors to futures thinking adoption (r = 0.510**, p = 0.002), indicating that research managers who adopt futures thinking approaches are more likely to exhibit the factors contributing to the adoption of futures thinking.

The findings highlight the relationships between years in service, awareness of futures thinking, adoption of futures thinking approaches, and the contributory factors to futures thinking adoption among research managers (Russell et al., 2020). These relationships were determined using Spearman's rho coefficient (Field, 2013).

It also emphasizes the importance of promoting the adoption of futures thinking approaches among research managers, regardless of their years of service. Organizations should consider implementing training and capacity-building programs to enhance awareness and facilitate the adoption of future-thinking approaches at all career stages. By doing so, organizations can foster a culture of innovation, collaboration, and continuous learning, leading to more effective research management practices (Russell et al., 2020).

Cross-Sectional Analyses Relative to Age

Table 8 presents the results of the cross-sectional analyses relative to age, specifically comparing research managers with less than 5 years of service to those with 5 years and above in service. The null hypothesis for each component tested whether the median of differences between the two groups equals zero. The related-samples Wilcoxon Signed Rank test was used for the analysis.

Table 8. Cross-Sectional Analyses Relative to Age

Null Hypothesis	Test	Component	Sig. [a,b]	Decision
The median of differences between below 5 years in service and 5 years and above in service equals 0.	Related-Samples Wilcoxon Signed Rank.	Awareness	0.066	Retain the null hypothesis
		Approaches	0.767	Retain the null hypothesis
		Factors	0.623	Retain the null hypothesis

a. The significance level is 0.050.
b. Asymptomatic significance is displayed

For the component of awareness, the p-value was found to be 0.066. Since the significance level (α) was set at 0.050, the p-value is greater than α. Therefore, the null hypothesis is retained, indicating that there is no significant difference in awareness of futures thinking between research managers with less than 5 years of service and those with 5 years and above in service.

Similarly, for the component of approaches, the p-value was determined to be 0.767, which is greater than the significance level of 0.050. Consequently, the null hypothesis is retained, suggesting that there is no significant difference in the adoption of futures thinking approaches between the two groups of research managers.

Regarding the component of factors contributing to futures thinking adoption, the p-value was found to be 0.623, which exceeds the significance level of 0.050. As a result, the null hypothesis is retained, indicating that there is no significant difference in the factors contributing to futures thinking adoption between research managers with less than 5 years of service and those with 5 years and above in service.

While the null hypothesis was retained for all three components (awareness, approaches, and factors), indicating no significant differences between research managers with less than 5 years of service and those with 5 years and above in service, these results provide valuable insights.

Firstly, the non-significant difference in awareness of futures thinking suggests that regardless of the length of service, research managers possess a similar level of awareness regarding futures thinking concepts and principles. This implies that organizations can focus on promoting awareness of futures thinking among all research managers, regardless of their experience level, to create a shared understanding of its importance and potential benefits (Smith et al., 2019).

Secondly, the non-significant difference in the adoption of futures thinking approaches indicates that both groups of research managers demonstrate a similar level of engagement with and utilization of futures thinking approaches in their work. This suggests that the adoption of futures thinking approaches is not necessarily dependent on years of service but can be influenced by other factors such as training, organizational culture, or individual motivation (Jones & Vear, 2020).

Lastly, the non-significant difference in the factors contributing to futures thinking adoption suggests that research managers, irrespective of their length of service, are influenced by similar factors when it comes to adopting futures thinking practices. These factors may include organizational support, access to resources, leadership endorsement, and a supportive work environment that encourages experimentation and learning (Davies et al., 2018).

Overall, these findings highlight the potential for organizations to implement initiatives aimed at enhancing futures thinking capabilities across all levels of research management, rather than focusing solely on more experienced individuals. By providing training, resources, and creating a supportive environment, organizations can foster a culture of futures thinking and ensure that research managers at all stages of their careers are equipped to anticipate and navigate future challenges effectively (Dunlop et al., 2021).

5. Conclusion and Recommendation

This study on "Snippets of Futures Thinking Approaches by Region 8 Research Managers" demonstrated varying levels of awareness and utilization of futures thinking approaches. While some approaches were widely adopted, others required further attention and promotion. The findings emphasized the importance of increasing awareness and addressing contributory factors to enhance futures readiness among research managers. The study identified the top-ranked approaches, such as environmental scanning, design thinking, and strategic foresight, as effective tools for research managers. It also highlighted the significance of organizational factors, culture, mindset, collaboration, diversity, and training in promoting the adoption and

utilization of futures thinking approaches. Furthermore, a no significant relationship between years in service and the adoption of futures thinking approaches or the related factors. This indicates that organizations should focus on promoting futures thinking capabilities at all career stages, rather than solely targeting more experienced individuals. Based on the findings, it is recommended that research managers and organizations in Region 8 prioritize professional development opportunities, create a supportive environment, and foster a culture of innovation, collaboration, and continuous learning. By integrating futures thinking into research management practices, they can anticipate and navigate future challenges effectively. Overall, this study provides valuable insights into the utilization of futures thinking approaches by research managers in Region 8. It emphasizes the importance of awareness, contributory factors, and promoting the adoption of these approaches across all career stages. By implementing these recommendations, research managers and organizations can enhance their readiness and improve their research management practices.

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